

WHAT IS CLAIMED IS:

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1. An exposure apparatus, comprising:
an illumination optical system for
illuminating an original with ultraviolet light;
5 a projection optical system for projecting a
pattern of the original onto a substrate to be
exposed; and
gas purging means for replacing an inside
space, where optical components of at least one of
10 said illumination optical system and said projection
optical system are placed, with a gas containing
substantially no water content.
2. An apparatus according to Claim 1, wherein
15 said gas purging means includes a sensor for detecting
the level of gas replacement and control means for
controlling gas purging on the basis of an output
signal of said sensor.
- 20 3. An apparatus according to Claim 2, wherein
said sensor comprises a hygrometer disposed in said
inside space.
- 25 4. An apparatus according to Claim 1, wherein
the gas containing substantially no water content
consists of one of N₂ gas, He gas and dry air.

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5. An apparatus according to Claim 1, further comprising passage means for mutually communicating spaces separated by said optical components, for gas purging.

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6. An exposure apparatus, comprising:
an illumination optical system for illuminating an original with ultraviolet light;
a projection optical system for projecting a
10 pattern of the original onto a substrate to be exposed;

gas purging means for replacing an inside space, where optical components of at least one of said illumination optical system and said projection
15 optical system are placed, with a particular gas; and
passage means for mutually communicating spaces separated by said optical components, for gas purging.

20 7. An apparatus according to Claim 6, wherein said particular gas consists of an inert gas.

8. An apparatus according to Claim 6, wherein said optical components include a lens, wherein said
25 apparatus further comprises a support for supporting said lens, and wherein said passage means for gas purging comprises an aperture formed in said support.

Sub a 9. An apparatus according to Claim 6, wherein
said optical components include a lens, and wherein
said passage means for gas purging comprises a notch
5 provided on said lens.

10. An apparatus according to Claim 6, wherein a
straight line connecting adjacent passage means
provided in one and the same casing for gas purging,
10 extends out of parallel to an optical axis of a lens
which is one of the optical components.

11. An apparatus according to Claim 1 or 6,
wherein a path is defined within the space for gas
15 flowing from a gas inlet to a gas outlet, for gas
purging.

12. An apparatus according to Claim 1 or 6,
further comprising a light source having one of a KrF
20 excimer laser, a ArF excimer laser and F₂ excimer
laser.

13. A device manufacturing method for
manufacturing a device by use of an exposure apparatus
25 as recited in any one of Claims 1 - 12.

add
a5

add
b2

add
f2

add
g1